The Bigger Picture of Water Quality in Muskoka

This article is part of the Ripple Article Series. Every other week, an article will be posted on the Engage Muskoka website that dives deeper into one of the twelve technical projects in the **Making Waves: Integrated Watershed Management initiative.**

The fact that more than 3.2 million visitors travel to Muskoka every year and spend over 500 million dollars might be surprising, but when you consider all that the local environment has to offer, the attraction becomes clear. Cottagers, tourists, and residents are drawn to Muskoka's extensive lakes, rivers, wetlands, and forests to experience Muskoka's nature. For that reason, it's in our best interests ecologically, socially, and economically to ensure our environment, and particularly our watershed, is healthy and functioning.

For the last 40 years, District of Muskoka staff have visited over 80 lakes and bays annually to sample the water for phosphorus, calcium, chloride, pH, temperature, and dissolved oxygen. This is one of the best and longest-standing municipal water quality data sets in Canada and is used to inform development policy based on long-term water quality trends to protect our aquatic ecosystems.

Over 190 sites on 164 lakes across the District are sampled on a rotating basis, with a frequency depending on the lake's development pressures and specific characteristics. For instance, some lakes are sampled every 2 years, such as portions of Lake Muskoka and Mary Lake in Huntsville, or every 3 years like Wood Lake in Bracebridge, with some lakes and bays that have been identified as vulnerable under the Muskoka Official Plan being sampled annually.

While it's important to analyze the water quality of lakes individually, it's also important to look at data from a watershed perspective because everything runs downstream. However, considering that the Muskoka River Watershed is approximately 5,100 square kilometers, evaluating water quality at that scale is no easy task. To help with this, as part of the Making Waves initiative, the District of Muskoka has launched a project to develop a watershed-wide water quality monitoring program.

Currently, the District of Muskoka and other organizations such as Ontario's Lake Partner Program and the Muskoka Lakes Association Water Quality Monitoring Program work to gather water quality information, but data gaps and overlaps exist. In addition, this data may not be used to its full potential because there is no one database for information to be uploaded and analyzed.

In addition to identifying data gaps, overlaps, and opportunities for a one-stop-shop database for water quality data, this project will evaluate what parameters should be focused on in different corners of the watershed. For example, calcium concentrations in the upper reaches of the watershed are declining, causing daphnia, an important species for the aquatic food web, to decline. On the other hand, some areas of the watershed are experiencing blue-green algae blooms, while others have dangerously high levels of chloride due to winter road salt run-off. Having a watershed-wide water quality monitoring program that considers the different needs of the watershed will ensure that monitoring efforts are used to their greatest potential. After all, a lot of the monitoring efforts are run by volunteers, so an efficient and effective program would benefit both the volunteers and the health of the watershed.

This project will be completed by early 2023, and the results will be posted on the Engage Muskoka "Making Waves" website. This project will help to inform future water quality monitoring in the Muskoka River Watershed to help protect and enhance the natural environment in Muskoka.

To learn more about Integrated Watershed Management and for updates on all projects, visit the Engage Muskoka "Making Waves" website.